PRIL/MAY 1961

THE AIR LINE PILOT

this issue

Pilots confer in Mexico City

The Electra's minimum control speed

Radar coverage - how much do we have?

Turbine airliners take travel lead

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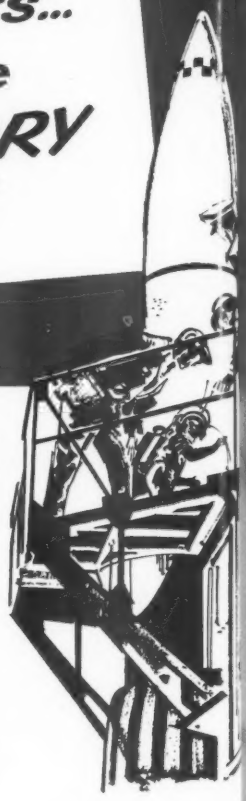

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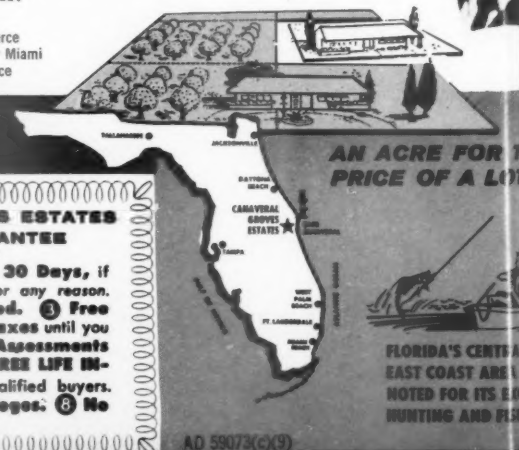

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402 West 13th St., Austin 1, Texas

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3. Date of Birth? ..... (Day) (Month) (Year) 4. Occupation? .....
5. (a) Who is to be your Beneficiary in case of your death? .....
   (b) Relationship? ..... (c) Do you reserve the right to change Beneficiary? Yes ☐ No ☐
6. (a) Plan: One Year Term Renewable at Option of Company (b) Amount of insurance applied for: $ .....
7. (a) Are you now in good health? ..... If not, give particulars .....
   (b) Have you had any illness or has a doctor attended you during the last five years? ..... If so, give particulars
   Date of illness ..... Nature and Duration .....

I hereby agree that all the foregoing statements and answers as written are true.

Dated at ..... this ..... day of ..... 19.....

..... Witness (Must be other than Beneficiary) (Signature of Applicant)

THIS PROGRAM OFFERED EXCLUSIVELY TO AIR LINE PILOTS

THE AIR LINE PILOT

APRIL/MAY 1961

Vol. 30, No. 3

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On The Cover

UN WE BELIEVE 65

Sikorsky Aircraft Photo

A Chicago Helicopter Airways Sikorsky S-58 conveniently stands still for its photograph above Chicago's famous Loop area. The 'copter is approximately above the Chicago River and the view is north-easterly. Chicago Helicopter flies a triangular route which links the city's three airports—O'Hare, Midway, and Meigs. The line is planning to add twin-turbine Sikorsky S-61Ls to its fleet.

Special Report:

IFALPA CONFERS IN MEXICO CITY

The International Federation of Air Line Pilots Associations met in Mexico City, March 7-14, to study the technical, sociological and industrial relations aspects of world civil aviation. This report comes from ALPA members who attended this important conference.

THE International Federation of Air Line Pilots Associations represents 44 pilot organizations—virtually all of the professional air line pilots of the world. This is more than 24,000 pilots of which approximately 14,000 are air line pilots of the United States.

A prime objective of IFALPA is increasing the effectiveness of pilot organizations which in turn raises professional standards. The international character of air transportation makes it necessary that pilot organizations have a voice in other organizations concerned with aviation—International Civil Aviation Organization (ICAO), the International Labor Organization (ILO), and others. Technical trends are still another area of concern for IFALPA. For example, what new problems will be created by supersonic aircraft?

The 16th Annual IFALPA Conference met in Mexico City from March 7-14. The conference reviewed and discussed 218 papers covering technical, sociological, and industrial relations problems of world aviation and took specific actions in important areas.

ALPA was well-represented at the conference. Four from ALPA were elected to officerships of IFALPA.

Mr. Sayen was re-elected to the presidency for the ninth consecutive time. W. A. Masland (PAA) was elected vice president of the North Atlantic Region, F. T. Sterling, Jr. (PNG), vice-president Caribbean Region, and D. L. Leonard (NWA), vice-president Pacific Region.

ALPA representatives to the conference in addition to President Sayen who presided, were John Carroll, 1st V.-P.; Ed Rordom, V.-P. Region II; A. J. Currie, V.-P. Region III; Ed Watson, as a Regional Safety Representative and Chairman, ALPA Training Plans Committee; and J. D. Smith, Regional Safety Chairman and Chairman, Director Traffic Control Committee.

The conference was very productive. Because of the large amount of news created by this meeting, a preliminary story appeared in the March 27, issue of the ALPA *News Bulletin* followed by a report on certain of the highlights in the April 10 issue of the *Bulletin*. This "Special Report" will be therefore, a more detailed account of the conference.

It will begin with president's report which outlined goals for IFALPA meeting and important accomplishments in three areas. It concludes by giving three important future objectives of IFALPA. Briefly they are: (1) the necessity to grow as an organization, (2) basic planning for the supersonic age, and (3) establish policy that will be implemented with IFALPA's resources.

Captain E. R. Watson, ALPA's representative on Subcommittee "C"—Airworthiness, has prepared a detailed report which appears here. (Other reports will be published as the material becomes available.)

NEW goals for the International Federation of Air Line Pilots Associations were outlined by Mr. C. N. Sayen, president of IFALPA. The goals which were contained in his president's report at the 16th annual conference in Mexico City, March 7, were four in number:

1. To bring the development of the facilities up to the aircraft;
2. To modernize our training and crew concepts within current needs;
3. To keep the pilots' organization as an active force within each country to raise technical and industrial standards, and to cause governments to fulfill their ICAO commitments;
4. To improve the effectiveness of each pilot organization so that it may serve as an effective representative of the professional pilot, and hence raise and maintain his professional standards.

Current accomplishments

In the IFALPA president's report solid accomplishments in three important areas were noted:

1. *Crew complement.* (Three pilot crew.) There is obviously a world-wide swing to the IFALFA concept in this area. In recent years this problem has been reviewed at length in evidentiary proceedings before many forums but the answer always comes out the same. . . According to our Executive Secretary, Captain C. C. Jackson, 83 per cent of the flight operations of the world are now being conducted in accordance with IFALPA policy . . . I would like to make clear once more, that contrary to the propaganda of some self-serving groups, the IFALPA policy has never been advocated or implemented in such a manner that any presently employed individual would be adversely affected. IFALPA has always fought to protect presently employed people and where their skills are becoming redundant, has advocated the retraining and requalification be made available.

2. *ILO Activity.* The tripartite Civil Aviation Conference of the ILO held in Geneva in the fall of 1960 represented the culmination of many years of effort . . . Probably the most important accomplishment of the ILO Conference, in addition to the understandings and agreements achieved which did not become the subject of formal voting, was the concept contained in the resolution adopted on flight time, duty time, and rest periods, that there should be limits on flight time *and* duty time and that limits adopted for safety purposes need not necessarily constitute satisfactory limits for social and industrial reasons.

3. *ICAO Activity.* IFALPA has continued to achieve increased recognition as an active and effective participant in the work of ICAO and during 1960 participated in five conferences. However, I want to make two main points in connection with our ICAO activity:

(a) That our effectiveness at ICAO can only be proportional to the effort which we expend within our own country to persuade our national delegates to the IFALPA viewpoint. . . .

(b) There has been in recent years a mounting criticism of ICAO in some area. In my opinion, ICAO offers the

best possible opportunity for the achievement of a substantial standardization of aviation facilities and procedures throughout the world and the raising of those standards. We should, in my opinion, meet this criticism whenever possible with constructive efforts to improve the functioning of ICAO.

In my view, however, the greatest contribution that we can make to ICAO's work in the next few years is to work actively to achieve implementation of planning already accomplished.

Building for future

The president's report in its concluding remarks looked to the future of IFALPA and recommended:

1. We must continue to grow and to develop our capabilities as an organization.
2. We must plan for the future. While we have a large number of current problems, the basic planning and decision making for the supersonic age is now in progress. Unless we become very active in this field, basic decisions affecting us will already have been made.

3. We have made great progesss in IFALPA but as we attack our agenda here at this conference, we should:

   (a) Plan wisely and well, not only to solve present problems but also to look far into the future.

   (b) Adopt only those policies which we fully intend to implement with all of our resources.

   (c) Not under-rate our own capabilities and strength. As professional pilots, ours is the primary responsibility for safety. Our stake in the industry is a large one since we devote not only careers but also our lives to it.

by E. R. WATSON (EAL)

Region II, Safety Chairman

With all sincerity, the group of over 70 pilots gathered together from 31 nations was one of the finest I have ever had the pleasure to be associated with. Their individual high professional and ethical standards were evident during every minute of the Conference. Their sincerity and devotion to the piloting profession is of the highest caliber.

Some traveled for several days from as far off as Indonesia, Australia, Central Africa, Japan, New Guinea, Nigeria and the Philippines. English was often spoken with a heavy accent, but with serious thought behind each sentence.

The outstanding feature of the entire Conference was the overwhelming warm hospitality of the Mexican pilot group. From the moment we stepped off the airplane in Mexico City until the last handshake after the farewell dinner, this atmosphere prevailed.

This was my first IFALPA Conference. It was evident from the beginning that we all shared most of the same social, industrial and technical problems. It was also evident that the delegates were well equipped and well experienced to handle these problems.

Association with this unique group also awakens one to the realization of the broad, international character of commercial aviation. It may be difficult for many of us to visualize that a British, French, Mexican or German pilot may spend more time in the airspace around New York, Chicago, Detroit, and Los Angeles than most U. S. pilots. Pilots from Sweden, Brazil, Peru and the Netherlands are flying DC-8's, B-707's or Electras. U. S. pilots on the other hand will be flying French built Caravelles this summer. Australia has installed complete DME coverage.

The world aviation community is truly one of common goals and common problems. The primary goal is the safe, efficient air transportation of passengers and cargo through airspace shared by all. Some of the problems are technical and industrial; such as adequate airports and navigation aids and acceptable flight and duty time plus reasonable rates of pay.

The growing international character of commercial aviation makes the role of IFALPA one of increased importance. Decisions made at the International level will affect U. S. pilots as well as other pilot groups throughout the world. No pilot group, large or small, can any longer live in a vacuum; just as no nation, large or small, can live alone. The free aerial highways of the world are beginning to handle more and more traffic carried in aircraft built by manufacturers separated by half a world and piloted by men from many nations.

Common problems facing pilots throughout the world are:

1. Inadequate runway lighting.
2. Inadequate navigation facilities.
3. Inadequate air traffic control.
4. Inadequate runway length.
5. Inadequate weather reporting.
6. Unrealistic aircraft performance certification criteria.

Another outstanding feature of the Conference was the accomplishment of Sub-Committee E chaired by Capt. J. D. Smith (CAP). Through almost day and night sessions, they completely revised the AGA (Aerodrome Ground Aids Section) of the technical manual. The only item of disagreement was on approach light configuration A system was resolved through the following standards adopted by the Conference.

Presiding at the 16th Annual IFALPA Conference were (left to right) Captain Dennis Follows, U.K., Conference Secretary; IFALPA President, C. N. Sayen, U.S.A.; and Captain C. C. Jackson, U.K., Executive Secretary.

Lighting

Standardization: Standardization in configuration, color and methods of operation should be introduced on a world-wide basis at the earliest practicable date. This includes: (1) Integration of approach, threshold runway lights and ILS reference point; (2) Lights to provide circuit guidance; and (3) A mandatory standby source of power to be provided for all approach, threshold and runway lighting. Non-standard systems should be eliminated.

Approach: High intensity approach lights should be provided for all main and instrument runways.

Length of system—So far as practicable, the minimum length of an approach light system should be 3,000 feet. However, shorter length down to 1,500 feet may be used in connection with non-instrument runways.

Configuration: The system must contain center line and bar elements at right angles to each other and a distance element (or distance elements) N.B. This permits use of the ALPA (configuration A) and Calvert (RAE) system.

Color and Type: The lights of the basic system must be readily distinguishable from extraneous lights. The center line of the system (i.e., the extended center line of the runway) should be marked by condenser discharge, sequence flashing lights so designed and beamed as not to dazzle the pilot.

Spacing: At aerodromes where landings are permitted in conditions of runway visual range of 800 meters or less, the center line approach lights should be spaced 100 feet apart.

Control of Intensity: Intensity control of the approach lights should be adjustable. Ideally this adjustment should be made by the pilot. However, if this operation is delegated to the aerodrome controllers, those controllers should be experienced in handling the system in order that maximum benefit may be provided for the pilot.

Threshold: The threshold of all runways used at night or in poor visibility should be conspicuously marked by a row of green lights at right angles to, and contained within, the runway edge lighting. Threshold lights should be controllable as in 2.2.6 above.

Edge Lighting: Runway edge lighting should be provided along the full length of all runways used at night. The lights should be slightly raised but not to a greater height than 10 inches above runway surface. The omission of lights (as at intersections) should be kept to a minimum and, so far as possible, the omitted raised lights should be replaced by flush lights. The rows of edge lighting should be 150 feet apart.

Narrow Gauge Runway Lighting: Narrow gauge lighting should be provided on all instrument runways. It should consist of two parallel rows of light elements extending for at least 3,000 feet from the threshold and placed symmetrically about the center line. NOTE: The rows should be between 60 and 75 feet apart, internal dimensions, unless further evaluation dictates amending the distance between these rows.

Runway Center Line for Take-Off: The center line of the runway should be marked by flush lights extending for the full length of the runway.

Runway Center Line Lighting for Landing: The center line of the runway should be marked by flush lights extending from the end of the narrow gauge system to the far end of the runway.

End of Runway Warning Lights: End of runway warning lights should be installed on all instrument runways at a standard distance from the end of the runway.

Visual Glide Slope Indicators: A visual glide slope indicator, should be provided to serve approaches to runways, whether or not the runway is served by non-visual or other visual aids, where, in the opinion of IFALPA:

a) the runway is used by aircraft whose characteristics, including speed and rate of descent, are such that the approach path must be maintained within fine limits; or

b) the pilot may have difficulty in judging his approach due to: (1) inadequate visual guidance as is experienced during an approach over water or featureless terrain by day or the absence of sufficient extraneous lights in the approach area by night; (2) misleading information such as is produced by deceptive surrounding terrain or runway slopes; or

c) the presence of objects in the approach area that may involve serious hazard if an aircraft descends below the normal approach path, particularly if there are no non-visual or other visual aids to give warning of such objects; or

d) physical conditions at either end of the runway present a serious hazard in the event of an aircraft undershooting or overrunning the runway; or

e) terrain or prevalent meteorological conditions are such that the aircraft may be subjected to unusual turbulence during approach; or

f) for any other reason, the pilot may find difficulty in judging his approach.

NOTE: *The provision of a visual glide slope indicator to serve runways with approaches over densely populated areas will assist the pilot to make a steady approach on an operationally satisfactory glide slope without undue power changes, thus ensuring a minimum of noise.*

Taxiway Lighting:

1. To determine policy on taxiway lighting having considered such aspects as:

a) Center line lights.
b) Color of center line lights.
c) Use of center line lights to show specific routing.
d) Edge lighting.
e) Color of edge lighting.
f) Spacing of edge lighting laterally and longitudinally.
g) Requirement for special lighting at high speed turn-offs.

Landing Distance Performance

There was no policy established as of the date of the conference. The following Airworthiness Technical Manuel study material is the result of the IFALPA study group work and was approved by the conference.

All Member Associations should press for the adoption in their national airworthiness codes of landing distance requirements based on the principles (though not necessarily on the same numerical values) given below:

(1) *The Landing Distance Required* should be *the greater of:*

(a) The Reference Landing Distance, *all power units operating,* multiplied by the *all power units operating* Field Length Factor; and

(b) The Reference Landing Distance, *critical power unit inoperative,* multiplied by the *one power unit inoperative* Field Length Factor.

(2) *The Reference Landing Distance,* is the gross horizontal distance from the runway threshold to the point

where the airplane comes to a complete stop, corrected to the ICAO Reference *Wet* Hard Surface.

(3) *Reference Landing Conditions.* In establishing the Reference Landing Distance, the following conditions should apply:

(a) The airplane should maintain an approach, on or above the ILS glide slope, or an approach slope, of 2½° to the horizontal, until touch-down sequence.

(b) The airplane should cross the ILS reference point, or, where no ILS installation is available, a point not less than 800 feet upwind of the runway threshold, at a screen height of 10 feet and at the Maximum Threshold Speed (defined in 4).

(c) The rate of descent at touchdown should not exceed 600 feet per minute.

(d) The operating power units should be developing the power necessary to maintain a steady gradient of descent of 2½° at a steady speed which will enable compliance with the above.

(4) *The Maximum Threshold Speed* is defined as the Target Threshold Speed + 15 knots.

(5) The *Target Threshold Speed* is defined as being not less than any of the following:

(a) V_{so} + 27 knots;

(b) V_{mcl} (minimum control speed, landing configuration, critical power unit inoperative);

(c) 12 knots above the normal touchdown speed;

(d) A speed which is 10 knots below the final steady approach speed with all power units operating, associated with approach flap.

N.B. *The Field Length Factor* is provided as a margin to cover operational variables not covered by other specific margins. The margin contained in BCARs is calculated to allow for the float characteristics of the airplane under certification and thus is variable, but is never less than 1.14 for the all power units operating case and 1.11 for the one power unit inoperative case.

Comment: The previous method of determining landing distance consisted of approaching at 1.3 times the stall at 50 feet over the threshold measuring the landing distance from the threshold without use of reverse thrust and adding a safety margin of 40 per cent for destination airports and 30 per cent for alternates. This method was reasonably satisfactory for piston engined aircraft. It was, however, not an accurate method and derived its safety only by providing large margins in the way of reverse thrust and 40 per cent or 30 per cent distance in excess of that measured. With the introduction of the jet several new factors entered the picture:

(1) Faster landings were made, demanding long runways so that nearly all runways become "critical";

(2) An excess of speed at the threshold resulted (owing to long float characteristics) in a much higher penalty in terms of runway consumed;

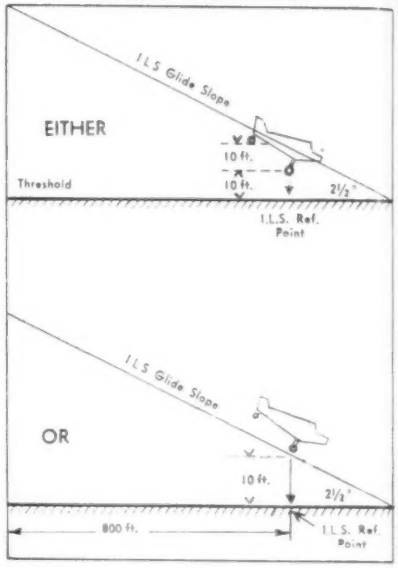
(3) With faster touchdowns the effect of wet surfaces in diminishing retardation was greater;

(4) The effect of reverse thrust became less (or nil).

The net result of these adverse factors was that the 30/40% margin was not enough. The method here recommended discards the philosophy of a minimum distance plus a large factor and substitutes for it a landing distance based very closely on airline technique, on the individual aerodynamic characteristics of the aircraft and on a wet runway. The margins are built into the approach speeds by relating them to the most unfavorable conditions from which a landing would normally be made. This being so, a large margin in terms of runway distance is not required; hence the suggested value of 14% (all engines) or 11% (one engine inoperative) instead of the 30/40% margin.

It is believed that by this method not only will the pilot be assured of an adequate landing distance in conditions of (reasonable) excess speed at the threshold, wet runway and one engine inoperative, but that he will have no inducement to cut his speed to a minimum near the flareout point—a feature which has in the past resulted in a high number of undershoots.

PICTORIAL SUMMARY OF IFALPA LANDING DISTANCE REQUIREMENTS



The maximum Rate of Descent should be 600 ft./min.

The maximum Threshold Speed should be the greater of the following:

(1) Target Speed + 15 kts or

(2) (V_{so} + 27 kts) + 15 kts = V_{so} + 42 kts or

(3) V_{mcl} + 15 kts or

(4) (Normal Touchdown Speed + 12 kts) + 15 kts = Normal Touchdown Speed + 27 kts or

(5) (Final Steady Approach Speed—10 kts) + 15 kts = Final steady Approach Speed + 5 kts.

Definitions

V_{so} is the minimum level flight speed, landing configuration.

V_{mcl} is the minimum control speed in the landing configuration with the critical power out inoperative.

Final Steady Approach Speed is that appropriate to landing weight, all engines operating and in approach configuration.

ASPA (Asociacion Sindical de Pilotos Aviadores de Mexico) — the pilots' association of Mexico was the host to the IFALPA Conference. Captain Andres Fabre (standing) Secretary General of ASPA, welcomes the conference.

To obtain Landing Distance:

Take measured landing distance, all engines operating, starting from a point 800 ft. down wind from the intersection of the 2½ glide slope and the runway surface and ending when the wheels have stopped rolling.

2. Correct it to 'ICAO Wet Hard Surface' by a factor of . . .(*to be decided at a later date*).

3. Multiply result by all engines operating field length factor (minimum value 1.14).

4. Repeat 1, 2 and 3 but for the one engine out case, using one engine out field length factor (minimum value 1.11).

5. The landing distance required is the greater of the all engines operating value in 3 and the one engine out value obtained in 4.

On Oxygen Systems

The Sub-Committee C considered the paper on Oxygen Systems submitted by the IFALPA Secretariat and found that present policy is in need of amplification. It therefore proposed the following:

Resolution

Whereas the oxygen masks currently available leave much to be desired.

Therefore be it Resolved

That the wearing of an oxygen mask on the face should **not** be made compulsory provided the mask and its related systems, gives an adequate measure of protection.

Comment

In order that an adequate measure of protection be provided by the mask it is considered that the following criteria should be met:

1. Prior to donning, it should not interfere significally with a crew member's ability to perform his normal duties.

2. It should be capable of being rapidly positioned on the face, retained there correctly and not interfere with the wearer's vision or means of communication, either during the donning or subsequently, nor should it impair significantly his ability to perform essential duties at any time.

3. Full demand oxygen must be immediately available.

4. It must be comfortable during prolonged wear or use.

5. It should be easily disconnected and reconnected and usable with a portable supply.

6. It should be of light weight construction.

The Committee further considers that these criteria should forthwith be brought to the notice of the appropriate autorities and manufacturers.

On Aircraft Fuels

The Committee considers available documentation on this subject and discussed current operating practice regarding the use of jet fuels.

Arguments in favor of, or against, either fuel (JP1 and JP4, i.e., kerosene or wide-cut gasoline) appear to be inconclusive many operating companies using either according to availability, and obviously both must be treated with respect at all times.

No specific policy is proposed.

On Supersonic Aircraft—Airworthiness Aspects

The Committee held a general discussion on the above subject, noted with approval the Preliminary Study prepared by ICAO in their document (Ref. Soc. 8087—C/925), and recommended the adoption as IFALPA policy the following:

"Supersonic airliners, when put into commercial use, must:

a) have a level of safety equal to that achieved by commercial aircraft in use at that time;

b) be compatible with subsonic aircraft; in other words, they will have to fit the existing pattern of aircraft moving in the air and on the ground at that time;

c) be so designed that they can operate at aerodromes where large subsonic jets can take-off and land."

The Committee recommends the strengthening and widening of the Federation's Supersonic Working Group so that all aspects of this future development may be studied, and the Operators, in making their *economical assessments,* be acquainted with our anticipated *technical, social* and *industrial* requirements.

The Sub-Committee further recommends that the Federation's representatives at the forthcoming IATA Technical meeting on this subject adopt the philosophy that, any attempt to introduce the commercial use of the supersonic aircraft before all their problems have been resolved to the satisfaction of the Federation will be resisted by the pilots represented by this Federation.

On Automatic Landings

Recommendation

The Committee has studied material contained in the Working Paper on Automatic Approach, Flare-out, Landing and Taxiing, presented by BALPA and recommends that the items contained in this paper under "Proposed items for inclusion in a Federation Policy and Automatic Approach, Landing and Taxiing Devices," should be adopted by the Federation as recommendation.

Guidance Material

It further recommends that this subject be put on the work program for continued study and that form 61C105 Addendum be used as guidance material.

Proposed items for inclusion in a Federation Policy for *Automatic approach, landing and taxiing devices.*

1. Any equipment installed in an aircraft which provides all or one of the above facilities must have a degree of operational *safety* when subject to normal airline techniques and maintenance such that the mathematical probability of a failure which would jeopardize the aircraft and its complement must not exceed $1x10^{-8}$.

2. The operating crew must have the *confidence* and the *equipment* with which to carry out the functions of *a master decision monitor.* In order to cover the eventuality of an occurrence which does not directly effect the automatic landing system but might hazard a continued approach to land the operating crew must be provided with information which *will enable them to initiate and carry out an overshoot from any part of the approach program.* To enable them to do this they must be provided with information displays whose *design standards are compatible with those of the aircraft and its automatic landing equipment.* Such information must *allow overshoots to be safely initiated* and conducted even if the aircraft has contacted the runway surface.

3. The operating crew must be given complementary information which will enable them *to monitor* the operation of the equipment and must be given the means to override the control actions of the equipment.

4. The operating crew must be able to make a *complete check* of the correct functioning of the equipment before the aircraft reaches the decision point after which point reliance is to be placed on the automatic equipment.

5. The operating crew must be given some *unambiguous* means of checking that the reference signals transmitted from the ground portion of the equipment are within specified limits.

6. The operating crew must be given a continuous indication of the correct functioning of the ground based portion of the equipment and that no change in environment or structure and moving objects has or is taking place during the time an automatic approach and landing is being made.

7. The operating crew must be provided with information which will give a contiguous indication of the successive phases of an automatic approach and landing. If the pilot is to execute the critical maneuver of alligning the aircraft with the runway during the crosswind approach in minimum visibility conditions then he must have adequate information from which to judge the timing and amount of the control movements which are needed.

8. The operating crew should be provided with information which will substitute the visual guidance normally obtained in the latter stages of an approach and landing from the surface pattern and the approach and runway lighting, which will be denied them when the subject equipment is being used down to the minimum practicable limits.

9. If it is necessary for the operating crew to continue an approach and landing following a failure of the equipment then they must be provided with the independent information which enables them to effect a normal landing or overshoot.

10. No automatic system can be considered complete unless it includes provision for the automatic initiation of overshoot and climb out procedures in accordance with a program based on the aircraft's optimum performance under such conditions.

11. The radio frequencies required for an automatic landing system must be selected from a band of frequencies which is at least likely to be affected by stray signals from other ground based equipment.

12. When the operating crew select any or all phases of an automatic landing system it must not be necessary for them to have to tune any of the equipment.

On Cockpit Sound Recorders

The Committee discussed the above subject with reference to Document 61C67 submitted by ALPA. While the usefulness of cabin sound recorders may be subject to doubt, and the legal aspects will probably preclude their installation and use, it is considered that cockpit sound recorders can contribute much desirable information.

To protect the pilot during normal operations it is considered that any such recording must be capable of being erased when so desired.

Therefore the Committee proposes the following:

It is recommended that the Federation endorses the installation of cockpit sound recording equipment to provide supplementary flight recorder information, providing all recordings from this source can to his certain knowledge be erased by the pilot immediately on the termination of each incident free flight.

On IFALPA Safety and Accident Representation Structure

Carried.

The Conference adopted the following:

"Sub-Committee 'C' considered items submitted by ALPA under the heading of *IFALPA Safety and Accident Representative Structure* and while agreeing in principle with everything in the paper, the Committee considers it is obvious that there will be many local and national obstacles to be overcome in the setting up of the suggested organization. Another aspect requiring close consideration will be that of cost, but, nevertheless, the following Recommendation should be acted upon as soon as practicable.

Recommendation

It is recommended that the Federation adopt a Safety and Accident Representation Structure to provide a member with prompt representation internationally should he be involved in an accident or incident. *It is further recommended,* that the Structure be coordinated by the IFALPA Regional Vice-President.

It is suggested that each IFALPA Region shall have a Regional Safety Chairman to coordinate the activities

Make recommendations on flight recorders

Flight recorders were another subject that received thorough discussion at the Mexico City, IFALPA meeting.

At present, U. S. Civil Air Regulations require recorders under both Part 40 (domestic certificated U. S. carriers), and Part 41 (U. S. certificated air carriers operating outside the continental limit of the U. S.)

Regulation *41.210 Flight Recorders* reads:

An approved flight recorder which records at least time, altitude, airspeed, vertical acceleration, and heading shall be installed in accordance with the following requirements:

(1) On all airplanes of more than 12,500 pounds maximum certificated takeoff weight which are certificated for operations above 25,000 feet altitude; and

(2) On all turbine-powered airplanes of more than 12,500 pounds maximum certificated takeoff weight.

When an approved flight recorder is installed it shall be operated continuously from the instant the airplane commences the takeoff roll until it has completed the landing roll at an airport.

Recorded information shall be retained by the air carrier for a period of at least 60 days. For a particular flight or series of flights, the information shall be retained for a longer period if requested by an authorized representative of the Administrator or the Civil Aeronautics Board.

A paper submitted by ALPA under the title, "Resettable, Direct Reading Cockpit Indication of Landing Load and vertical Gust Loads (G-meters)," received careful consideration. The committee felt there was great merit in the proposal to provide the pilot with directly read information of all forces being experienced by his aircraft.

Based upon this conclusion, the following recommendation was proposed, and unanimously carried:

Whereas, flight recorders presently being installed do not provide the pilot at the controls with indications of the continuous and peak structural loads being experienced, and

Whereas, such indications would provide immediate information for influencing the pilot's subsequent decisions, and

Whereas, it is considered highly desirable to provide such information to the pilot,

It is *recommended* that the Federation endorse the use of direct reading, resettable instruments capable of indicating continuous and peak structural load forces, such as gust, maneuvering, and landing loads (including side thrust loads), and that such instruments be easily readable by the pilot at the controls.

It is further *recommended* that, the Federation and member associations work individually for the development, refinement, and installation of satisfactory instrumentation to provide such information, if necessary, through suitable regulations and legislation.

It is further *recommended* that the Federation oppose the use of any such information for any purpose that may result in punitive action being taken against a pilot.

(Comment: Suitable instruments are available that are of light weight, low current absorption and present few difficulties in installation.)

of the various Safety Chairman in his Region.

IFALPA will appoint the Area Representative at each location in consultation with the Regional Vice-President.

It is further proposed that:

1. An active roster of sufficient accident representatives be maintained under the direction of IFALPA Regional Vice-Presidents.

2. Detailed written standard operating procedures for these accident representatives, such as is contained in the "ALPA Organization for Safety" booklet, be adopted.

3. Terms of Reference for all concerned should be determined by the Principal Officers and the Secretariat.

4. It be made known that it is the wish of IFALPA that any local airline pilot representative, not having duty commitments, should proceed to the scene of an accident, do whatever he can to assist the crew members and prepare a written report on his activities and circumstances relating to the accident for use of designated Accident Representatives.

Guidance Material

It is noted with regret that the Belgian members (ABPNL) have been refused permission by the Belgian Authorities to participate in investigation of an accident to one of their own aircraft in the neighborhood of their home base. It is suggested that the Secretariat takes the appropriate action to rectify this most unsatisfactory state of affairs."

The 31 pilot groups represented by 68 delegates were from:

Austria	France	Netherlands
Belgium	Germany	New Guinea
Brazil	Japan and	New Zealand
Canada	Nigeria	Norway
Columbia	(New	Peru
Costa Rica	members)	Phillipines
Denmark	Indonesia	Rhodesia
Eire	(Observer)	So. Africa
England	Germany	Sweden
Finland	Greece	Switzerland
Iceland	Italy	Turkey
(represent-	Mexico	Unied States
ed by proxy)		

Representatives from the USSR and Czechoslovakia were also invited but were unable to attend.

In addition to the pilot representatives there were observers from ICAO, the United Nations, the International Labor Organization and the International Air Navigators Council.

Mr. C. N. Sayen was elected President of IFALPA for the ninth consecutive year with Captain E. A. Jackson of Ireland re-elected Deputy President. Captain Tony Spooner of BALPA was re-elected Secretary and Captain N. P. Chauon of KLM re-elected Treasurer.

I regarded this opportunity to discuss mutual problems with fellow pilots from all over the world as a very high honor. It was an experience that cannot be purchased or duplicated.

The next IFALPA Conference will be held in Stockholm, Sweden, on March 27 through April 3, 1962.

Items Worthy of Special Comment

(EDITOR'S NOTE: *Due to lack of space, the following items were excluded from the April 10 edition of the ALPA* NEWS BULLETIN *report on the 16th Annual IFALFA Conference held March 7-14 in Mexico City. Since, in general, they tie in with the preceding report by Capt. E. R. Watson, they are placed here for your continued reading.)*

1. There continues to be significant gaps in the communications facilities, both VHF and AFTN in Spain. There is also little provision of meteorological information or flight information for aircraft operating in the upper levels.

2. In Mexico, there are not sufficient radio-navigation facilities to sustain the route network and this serious situation is worsened by inadequate communication facilities.

3. Attention is also drawn to the NAT Regional vice-president's criticisms of the procedures and facilities in the New York area.

4. In Brazil, there has been a welcome improvement in the once critical situation, and we note with pleasure the many planned improvements which have already gained the budgetary sanction of the administration of that State.

After consideration of these comprehensive reports, we (Chairman's Report —general) see the need for the folowing resolutions:

To draw the attention of ICAO and/or the States concerned to the deficiency reports and other material which have been laid before this Conference. (Carried and Ratified.)

(Comment: Particular emphasis should be placed on the urgent need for standard, coherent, and complimentary Nav., Com., Met. and ATC procedures and facilities. There must be early provision of sufficient controlled airspace to make 100 per cent IFR operation possible at all the currently used flight levels. To assist this aim, National Pilot Associations should consider recommending the abandonment of some current procedures such as VMC climbs and descents within controlled airspace, etc.)

That the Federation produce an International Deficiency Report Form which will be completed as necessary by the pilots of Member Associations;

(Continued on page 18)

Mexican Press gives IFALPA extensive coverage

Solicitan los Pilotos que Todos los Aviones Tengan Radar
Principió Ayer la Conferencia Internacional de los Pilotos
La Federación de Pilotos Está en Contra de los Ingenieros de Vuelo
La IFALPA Pugnará por los Tres Pilotos en los Jets
Delegados de 43 Países Congresa la Junta Anual de la IFALPA en México

DAEDALIANS' AWARD TO PILOTS FOR SUCCESSFUL PACIFIC DITCHING

Two air line pilots have been honored by the Order of Daedalians for outstanding performance in the line of duty as a result of actions in safely completing a commercial air line flight under emergency conditions.

Captain David Rall of Seattle, Washington, and First Officer Travis Everett of Fall City, Washington, both Northwest pilots, received the Award at ceremonies held at the 27th meeting of the Order of Daedalians at Kelly Air Force Base, Texas, in April. The presentation was made by Brig. Gen. Harold L. Clark (USAF-Ret.), National Commander of the Order.

The action for which the two pilots were cited occurred during a flight from Tokyo to Manila on July 13, 1960, when the aircraft developed a run-away propeller.

Captain Rall ordered the removal of passengers from the propeller area, a move which saved several lives because a short while later the prop penetrated the fuselage in this region. With an un-

(Continued on page 18)

U. S. Air Force Photo

DAEDALIANS' AWARD to (left to right) Captain David Rall, Brigadier General Harold L. Clark (USAF-Ret.) and First Officer Everett.

Executive Committee holds April meeting

ALPA Photograph

THE ALPA EXECUTIVE COMMITTEE pauses for its picture when it met in the home office, Chicago, the week of April 4-6, 1961. At this meeting was Mr. A. J. Clay, Jr., newly elected vice-president of Region I. (Left to right) are H. B. Anders (UAL), Region V Vice-President; D. J. Smith (TWA), Treasurer; ALPA President C. N. Sayen; and P. G. Atkins (AAL), Secretary. Standing are A. B. Currie (CAP), Region III Vice-President; A. D. Adams (BNF), Region IV Vice-President; A. J. Clay, Jr. (TWA), Region I Vice-President; J. C. Carroll (TWA), First Vice-President; and E. P. Rordam (EAL), Region II Vice-President.

Trans World Airlines Photo

Captain Bob Buck, veteran Trans World Airlines pilot, poses with TWA's new president, Charles C. Tillinghast, Jr., before a recent flight to Paris, commanded by Captain Buck. Captain Buck is active in ALPA affairs particularly in the area of air safety. During his Paris visit, Mr. Tillinghast met personnel of TWA's Internatonal region.

THE ELECTRA'S MINIMUM CONTROL SPEED IN FLIGHT

A discussion of the minimum air control speed at which straight flight can be maintained when either one or two engines are suddenly made inoperative — a report from Lockheed Aircraft.

THE ALPA Eastern Air Lines Accident Investigation Committee in their report on the EAL Electra which was destroyed shortly after take-off from Logan Airport, Boston, on October 4, 1960, noted in their report dated March 15, 1961, that one of the contributing factors was "Crew having no knowledge of aircraft performance at V with multiple power failure as determined subsequent to this accident."

The committee concluded its report by recommending the training curricula — particularly for the Electra — emphasize ". . . Coupled with this air work, the operational part of the ground school should stress a clear, concise definition of V_{mc} as printed in the airplane manuals, emphasizing that altitude may be sacrificed in order to maintain directional control. Implementation of the foregoing should go a long way to counteract the false sense of security that many of us have derived from the present training we receive in making turns into the dead engine(s)."

Lockheed's report

Lockheed's engineering department has now published a paper on the problem of minimum control speed in flight with one or two engines disabled and we are reproducing here, their report "Number 15, April 12, 1961."

SUBJECT: MINIMUM CONTROL SPEED IN FLIGHT ($V_{mc/air}$)

INTRODUCTION:

An investigation including flight testing was conducted at Lockheed to determine the effect of certain variables on the air minimum control speed of a four engine aircraft. Information considered to be of interest to pilots and operating personnel was obtained during this test program and is included in this letter.

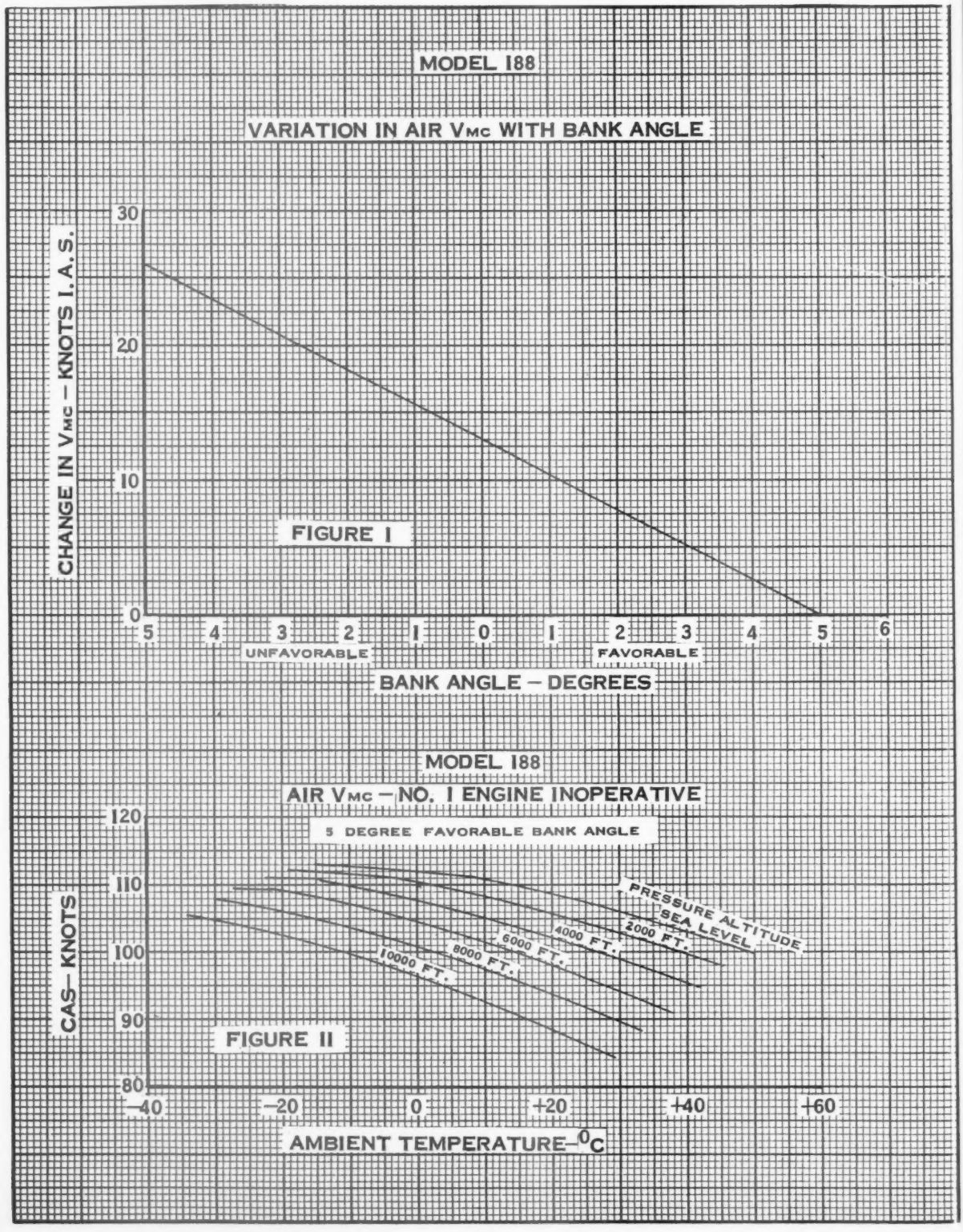
DISCUSSION:

Minimum air control speed is defined as the minimum speed at which straight flight can be maintained when the critical engine is suddenly made inoperative (propeller either feathered or NTS-ing in the case of the Electra). In the determination of air minimum control speed, the Civil Air Regulations (4b.133) specify among other things that:

1. The airplane must be trimmed for take-off.

FIGURES I and II

Courtesy Lockheed Aircraft Corporation



T[illegible] ELECTRA'S . . .

. Take-off or maximum power a[illegible]lable must be used on all the opera[illegible] engines.

. An angle of bank not greater th[illegible] 5 degrees (inoperative engine hig[illegible]) may be used.

. The rudder force required to maintain control shall not exceed 180 pounds and it shall not be necessary to throttle the remaining engines.

. It shall not require exceptional ability or strength on the part of the pilot to prevent a change in heading in excess of 20 degrees before recovery of directional control is complete.

Bank Angle

Minimum air control speeds on both the Electra and Constellation were determined using a 5 degree bank angle with the inoperative engine high. Use of this favorable bank angle reduces rudder force and displacement required to maintain a constant heading.

Recently, interest was shown regarding the effect of an adverse bank angle (inoperative engine low) on minimum air control speed. Flight tests demonstrated that the effect of bank angle on the minimum air control speed was of a larger magnitude than generally realized. For example, a change from a 5 degree favorable bank angle (inoperative engine high) to a 5 degree unfavorable bank angle (inoperative engine low) increases the minimum air control speed, all other factors remaining constant, by 26 knots IAS. This may be seen by reference to Figure I which illustrates the results of the flight tests.

Power

Minimum air control speed has a direct relationship with asymmetric thrust — which is the sum of the drag of the failed engine and the thrust of the opposite (symmetrical) operating engine. Turbine engine power and thrust vary with changes in outside air temperature and pressure, and this variation is reflected in the minimum air control speed as shown in Figure II. Since minimum air control speed varies with asymmetric thrust, it is apparent that directional control can be maintained at speeds below the published air minimum control speed by reducing the asymmetric thrust. Because the resultant effect on climb capability this would only warrant consideration in the case of multiple failures resulting in serious directional control problems.

[illegible]m Tab Setting

As previously stated, the Civil Air Regulations require that trim tabs be in normal take-off settings in determining the minimum air control speed. In the case of the Electra, this has no effect on the minimum air control speed, as defined, since full, or nearly full rudder travel is obtained with 180 pounds rudder pedal force at these speeds. Additional rudder trim (tab) is a powerful means which may be used by the pilot to assist in maintenance of directional control in the event of a multiple failure at low airspeeds, or reduce pilot effort at any time when flight must be considered with asymmetric power.

Minimum Control Speed with a Single Engine Failure

Directional control with failure of a single engine does not present a serious problem since the minimum take-off safety speed (V_2) is never less than 110% of the minimum air control speed by definition. The most important point to remember, however, is that the "book" minimum air control speed was obtained with a 5 degree favorable bank angle, and that any decrease in bank angle will have the effect of increasing the minimum air control speed.

Flight tests have shown that no perceptible change in rate of climb occurs between flight with the wings held level, and flight with 5 to 10 degrees of favorable bank angle; however, this practice will result in optimum over-all airplane performance.

Minimum Control Speed with Two Engines Inoperative

Minimum air control speed is substantially higher with two engines on the same side inoperative. Minimum control speeds for this condition may be found on Figure III. At lesser speeds, maintenance of directional control becomes increasingly difficult, and it may be impossible to maintain a straight flight path. It should be borne in mind that although operation below the minimum air control speed results in the inability to maintain directional control, a moderate turn toward the inoperative engines may present no particular problem. Our discussion, however, is limited to the ability to maintain control over flight path direction.

The effect of bank angle on minimum control speed remains unchanged, therefore, it is mandatory that a favorable bank angle be maintained. Use of rudder tab will provide additional assistance in maintaining a straight flight path, as normal pilot effort will not be sufficient at the speeds involved to drive the rudder to its full throw.

The least desirable means of maintaining directional control in the case of multiple engine failure on the same side is reduction of asymmetric power. Since the outboard engine provides the greater turning moment on the airplane, directional control can be regained with the least possible over-all power reduction by reducing power on the outboard operative engine only, leaving the inboard at full power.

Relative importance of bank angle, reduction in outboard engine power, and reduction in inboard engine power may be seen by reference to Figure IV.

Minimum Control Speed with an Engine Failure and Control Boost Off (Shifted)

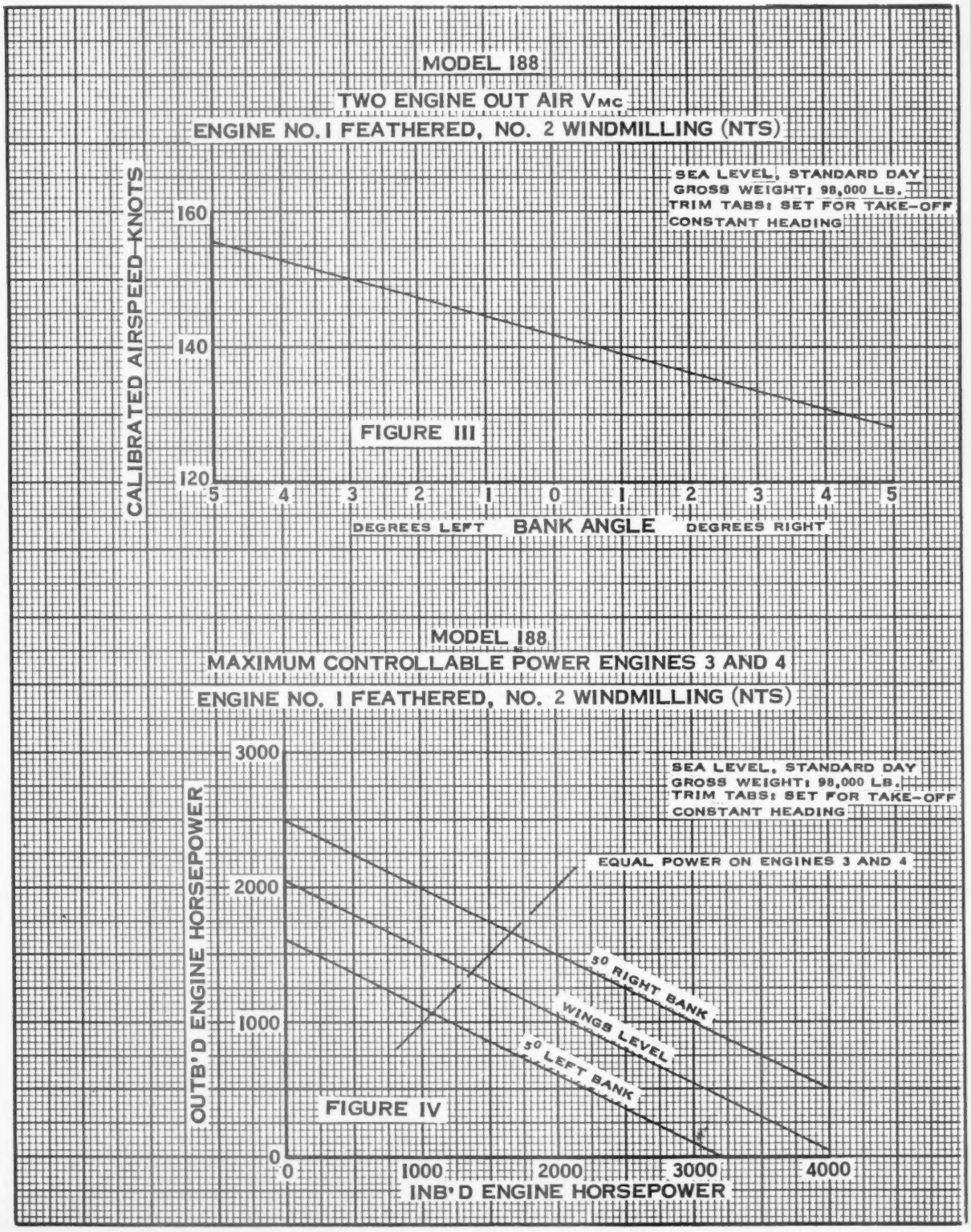
In the extremely remote case where an engine failure at low speed might occur while flying with the control boost shifted to manual (e.g., training), pilot action should be much the same as for the multiple engine failure previously discussed. In this situation, bank angle again has a powerful effect on maintenance of directional control and should be used. Directional control can not be maintained solely through pilot effort on the rudder pedals due to the high force requirements at low speeds. Therefore, it is necessary to employ rudder trim tab to retain directional control of the airplane.

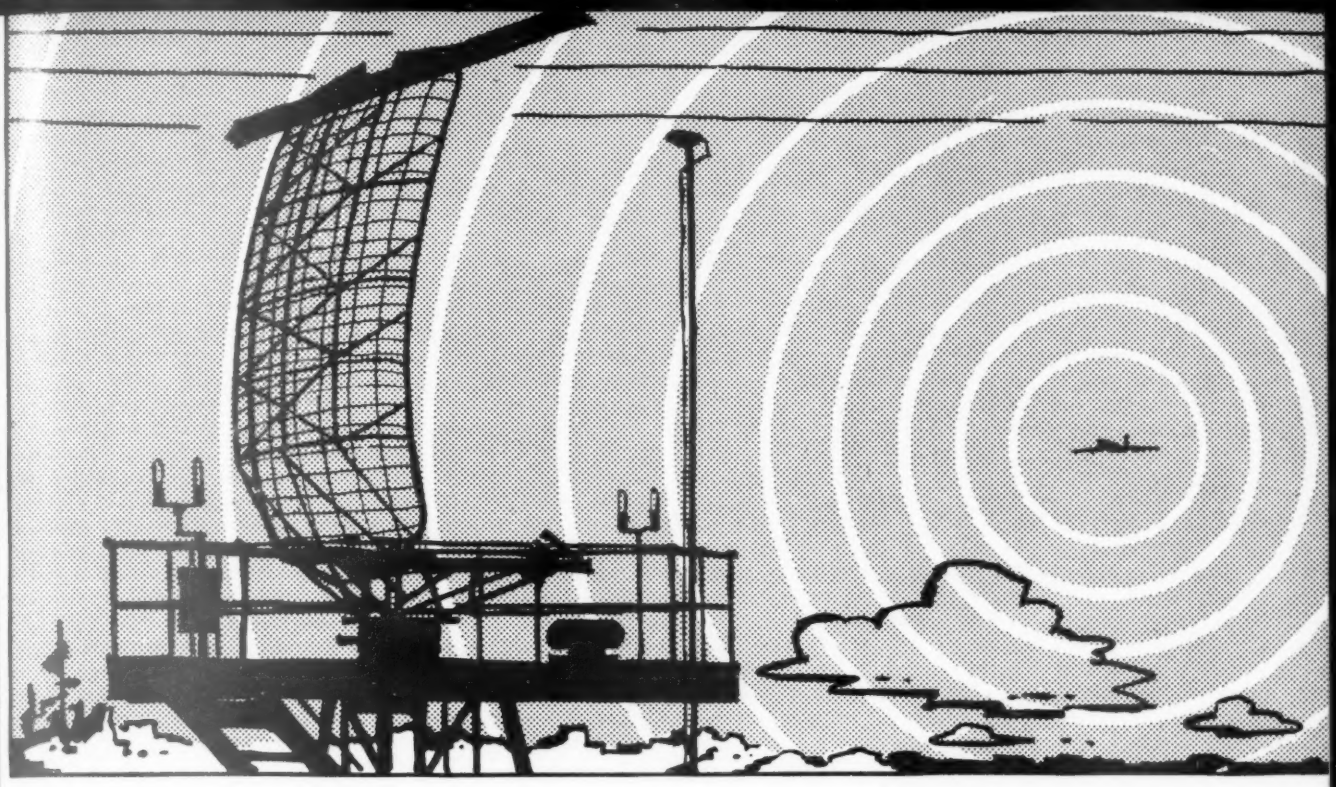
It is interesting that this technique of rudder tab, and favorable bank angle was found to be the optimum procedure to be used in the maintenance of direction control during a test of directional controllability with the boost connected and no boost pressure. This test was conducted from a purely academic standpoint and it was found that even under this virtually impossible situation, directional control could be maintained. Bank angle is easily controlled, even with the boost on but no hydraulic pressure, however, additional rudder trim tab is required due to the high rudder pedal forces experienced in this case. It must be emphasized that the controls are not "locked" in the event they remain in the boost-on position and there is no hydraulic pressure. The controls do become extremely heavy, but are by no means immovable. The airplane can be controlled and even maneuvered about all three axes by one pilot as long as it is kept nearly in trim.

Although the above discussion is pointed toward the Electra, the fundamental relationships of minimum control speed remain unchanged as related to current multi-engine aircraft. Thus, portions of this discussion may be considered valid for other type aircraft such as the Constellation series.

FIGURES III and IV

Courtesy Lockheed Aircraft Corporation





Courtesy Federal Aviation Agency

RADAR COVERAGE--HOW MUCH DO WE HAVE?

By TED MacEACHEN, *Chairman*
ALPA Air Traffic Control Committee

IN RECENT months there has been a great deal said and written about our ATC problems, but about one aspect of the problem—namely, radar and radar vectoring—there seems too much misinformation. Even an insider like General Quesada was under the wrong impression when he told the National Press Club last November, referring to the jet transports good safety record, ". . . The military establishment have about 22,000 aircraft. Most of them fly at higher altitudes—the environment into which the new jet transports suddenly moved—and, without the application of a vast number of military radars that were made available to us to track the jet transport from take-off to touch down, I think that would not have been possible."

Unfortunately, the jet transports are not being tracked from take-off to touch down—and they never have been. There are large gaps in the radar coverage throughout the country, but particularly in the terminal areas, as we all learned after the UAL-TWA mid-air collision. Obviously, even where there is good radar "coverage," if the local procedures are such that no one is supposed to be watching the aircraft as control is passed from Center to Approach Control, then there is a gap. And, it's a big one. But even when under radar observation, we do not receive the protection that many pilots think that we do, because of a change of procedure that came about more than ten years ago.

Vectoring, an "additional service"

This change was a letter that the CAA put out to all its controllers, telling them that advisories of unidentified traffic and vectoring would now be considered as "additional services" that would be performed only if they did not interfere with the controllers first responsibility of separating his controlled traffic. He would not be required to provide this "additional service" if, in his opinion, he could not do so because of other work load communications, radar limitations, etc., and his decision was final and not subject to question!

Up until this time it had been the controllers responsibility to vector his controlled aircraft from all observed, conflicting traffic. On a sunny Sunday afternoon with everything that could struggle off the ground up and flying around, this resulted in a monumental problem for the controller as he vectored a departure out of a metropolitan area.

Using a flat scope with no altitude information, he had to vector constantly in order to fulfill his obligation. He would no sooner tell an aircraft to turn left to avoid traffic than another target would suddenly appear exactly where the departure was turning to. Why did it suddenly show up? The radar an-

(Continued on following page)

Ted MacEachen has been a pilot with American Airlines for 8 years and is currently serving as first officer on Electra equipment. He was an air traffic controller and control tower operator while in military service. He has an ATR pilot certificate, and has served as an instructor on a Link Trainer. He spent 6 years with the CAA in ATC centers and control towers. This experience included extensive service as an operator in the LaGuardia control tower. He has maintained interest and contacts with his former associates, and has remained current on the problems these people are encountering today. He was the ALPA N.Y. Regional Air Safety Representative for over four years working on air traffic problems, airport safety and accident investigation.

Air Line Pilot Named Winner of National Safety Council Award

The Air Line Pilot, ALPA's monthly magazine has been named a winner of the National Safety Council's Public Interest Award, Howard Pyle, council president, announced.

"I am sure you feel, as we do," Pyle stated, "that there is another dividend as a result of your safety efforts—the knowledge that you have helped prevent many accidents."

The noncompetitive award annually honors organizations in the mass communications field for exceptional service to safety. Established in 1948, they have been presented in recognition of leadership, initiative and originality by the mass media in the promotion of accident prevention.

A panel of seven judges selects entries, "which indicate an outstanding effort in behalf of safety." A plaque, representative of the award, will be presented to the Association in the near future.

RADAR COVERAGE . . .

(Continued from preceding page)

tenna pattern is such that a low flying aircraft will not show up until it climbs up into the bottom of the pattern and then it just suddenly blossoms.

The result was that sometimes a pilot would find himself vectored away from traffic thousands of feet above him and right into an aircraft climbing through his altitude. Pilots squawked, the carriers squawked and the controllers squawked. Thus, came about the additional services letter. Now, the controller did not have to give the traffic unless, in his opinion, his workload would permit, communications were satisfactory, etc. Even when he did give the traffic, it was not necessary to vector unless requested to do so by the pilot. This stopped most of the complaints, but did nothing to enhance the safety of the trip.

Must request vectors

Even today some pilots seem unaware that they have to request vectors. How many times have you heard a controller say, "Traffic 12 o'clock, 5 miles"; and the pilot's reply, "I'm on instruments." The reply is meaningless. Traffic control is based on the assumption that an aircraft is always on instruments. So, unless the pilot says, "I request a vector from the traffic," he will not get one. As far as I, personally, am concerned, I always want a vector. If the traffic is close enough for the controller to mention it, then it's close enough to warrant a vector and this is regardless of whether I'm in the clear or on instruments.

We have all read of and experienced a sufficient number of incidents to know that the rate of closure of high speed aircraft is too much for the human eye to defend against and I want the electronic eye to help me as much as possible.

After a mid-air collision a few years ago, President Eisenhower issued an order to the military that required high speed jet aircraft with certain exceptions, to fly within the traffic control system on IFR flight plans. This sounded as though it would provide a large measure of protection to other users of the airspace who similarly were flying on IFR flight plans. Unfortunately, there was no prohibition against flying VFR on top while on an IFR flight and this is what a good number of the affected military flights actually do. Also, VFR climbs and descents are accepted as part of an IFR clearance, so that much of the good of the Presidential order has been lost. The point is that we should not be too complacent about our separation from military aircraft even when they operate IFR.

In summation

In summation, let me stress the need to emphasize to all our pilots that they must request radar vectors if they want them, and remember that the controller is not required even to advise them of observed conflicting traffic. This latter point might be kept in mind by our members who, when flying VFR, may be of the opinion that radar will keep other traffic advised of their presence. Maybe they will and maybe they won't, but this isn't the kind of an industry where we can afford to operate on a hit or miss basis. We've got to miss!

PILOT'S CONFERENCE

(Continued from page 11)

such reports to be sent by the Member Association to IFALPA Executive Secretary with copies to the appropriate Regional Vice-President. (Carried and Ratified.)

(Comment: It is intended to provide better material for Member Associations and the Federation representatives in their efforts to bring about improvements in the present unsatisfactory situation in various fields.)

That the Secretariat present each Annual Conference with a report of the deficiencies submitted by the National Pilot Associations, the measures taken or proposed to overcome them, and the results already achieved. (Carried and Ratified.)

(Comment: The Sub-Committee was well aware that this system, if employed, to a considerable degree would place an additional workload on the Secretariat. It was therefore agreed that the Secertariat should, until further notice, be given the right to handle these reports in the manner best suited to prevailing circumstances.)

That the Federation will cooperate in attempts being made to produce a cloud atlas using air photographs of cloud formations. (Carried.)

DAEDALIANS' AWARD . . .

(Continued from page 12)

controllable wing fire, an emergency ditching was ordered by Captain Rall. The aircraft descended through the overcast under conditions of heavy rain and the surface of the water was not visible until within 200 feet.

A night ditching was affected and an evacuation drill, earlier, facilitated the successful evacaution of 51 passengers and seven crew members with no serious injuries. Excellent organization of the survivors resulted in all occupants but one being rescued. The use of emergency flares by Captain Rall resulted in early sighting and rescue.

The technical proficiency displayed by Rall and Everett in meeting the grave emergency, and in the handling and landing of the aircraft was cited as the most outstanding action in furtherance of air safety on certified commercial airlines during 1960. The selection was made by a committee composed of representatives of the Federal Aviation Agency, Air Line Pilots Association and Air Transport Association. The Award was established in 1957 and has been presented annually since then.

With the Flight Attendants

Given a choice, flight Attendants select ALPA

The Steward and Stewardess Division of the Air Line Pilots Association is a professional organization which represents flight attendants. As a Division of ALPA, the flight attendants' problems of compensation, working conditions, legal problems, etc., are handled by the same staff members who handle pilots' affairs.

At the 15th Biennial ALPA Board of Directors' meeting held in November, 1960, the Board issued a directive calling for the organization of a Steward and Stewardess Division, and that the Division should begin a program to bring flight attendants into the Division.

The response of flight attendants to the Division has been gratifying. In the Division's first test of strength against ALSSA, in a National Mediation Board sponsored election, the flight attendants of Braniff Airways voted overwhelmingly to be represented by ALPA in a representation election held March 13, 1961.

A month later on April 17, the Division scored another victory when the flight attendants of United Air Lines voted almost 5 to 1 in favor of having the Division represent them as their bargaining agent.

Other elections are scheduled and will take place when each petition is processed by the NMB.

The constitution and by-laws of the Steward and Stewardess Division were approved by the ALPA Executive Committee at its April 4-6 meeting, under Association policy adopted by the Board of Directors at the 16th Biennial Meeting.

Appointed as temporary officers of the Division were Sally Gibson, UAL, as secretary, and Carol Carraro, TWA, treasurer. They will serve only until re-elected or replaced by the Steward and Stewardess Division Board of Directors at its first meeting.

ACTING OFFICERS for the Steward and Stewardess Division of ALPA. (Above) Sally Gibson, UAL, acting secretary, and (below) Carol Carraro, TWA, treasurer.

New custom design for NOR stewardess uniform

North Central's 170 stewardesses are highlighting the company's "new look" by appearing on their flights these days attired in new custom-designed uniforms.

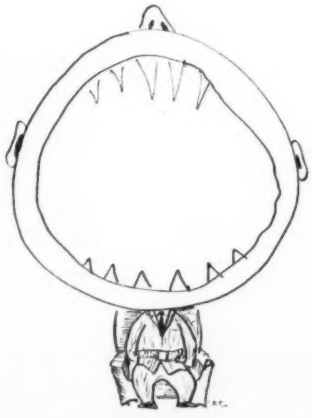
The worsted wool suit of cocoa brown is tailored with a fitted jacket that buttons to the neckline, and a slim skirt. The jacket has three-quarter length sleeves and a rounded Bermuda collar.

The off-white blouse worn with the suit also has a small collar which fits over the suit collar.

Special features for the comfort of the stewardesses, in their travel on the Route of the Northliners, are incorporated in the all-weather uniform coat. Styled of cocoa brown worsted twill, the coat has a zip-out pile lining and a button-on hood.

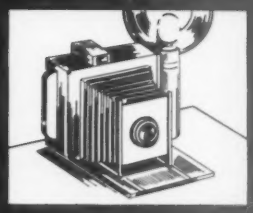
The new fashion in stewardess uniforms is one of the many changes evident at North Central in its current corporate identity program. The project aims to improve and standardize the design of all visual features of the airline, including aircraft, ticket counters, and uniforms.

Caroline E. Caldwell — UAL



The typical passenger

Summer traveler

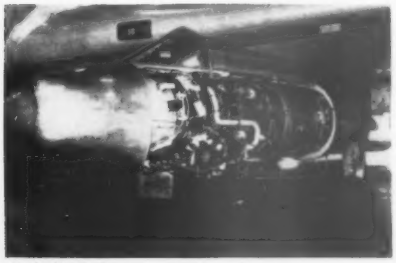


The ALPA Camera

Some Highlights and Sidelights of the News and ALPA in Pictures

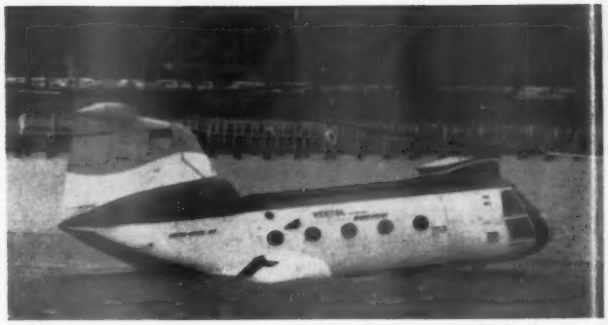
Northeast Airlines Photo

***NORTHEAST AIRLINES' CONVAIR 880** is now on regular scheduled operation. Plane has a GE CJ-805 jet engine, same basic type as used on Convair's B-58.*



"POD PACK" spare engine is being used by Air-India to transport engine replacements where they are needed rather than stockpiling engines at many points.

Air-India Photo



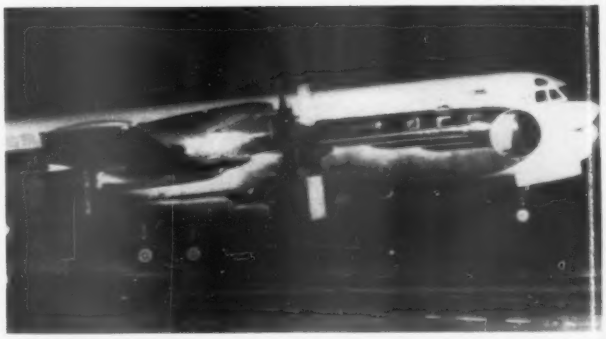
U.P.I. Photograph

***BOEING VERTOL 507**, called the world's most versatile helicopter, demonstrates water landings and take-offs on lagoon adjacent to Chicago's Meigs Field.*

Saalfeld Aircraft Photo

***YOU CAN BUILD** this "Skyskooter" from a kit at home the publicity release says. Ceiling over 12,000, top speed 85mph, range 250 miles, weight 275 pounds.*

U.P.I. Photograph



***SKILFUL FLYING** brought this Electra down safely at Logan Airport, March 2. Plane was landed on its tail because of a damaged nose wheel.*

TURBINE AIRLINERS TAKE TRAVEL LEAD

U. S. turbine-powered air liners last year soared to new performance heights, increasing their patronage more than 150 per cent, during the second full year of operation.

During 1959, U. S. scheduled carriers flew 7,715,000,000 revenue passenger miles in jets, both turbojet and turboprop. This was 21.2 per cent of the total number of revenue passenger miles flown by all scheduled planes that year.

Last year, jets flew 19,510,000,000 revenue passenger miles, an increase of 153 per cent from the previous year.

The 1960 record of jet travel was more than 50 per cent of the total flown by all planes, even though jets compose only slightly more than one-fourth of the air line fleet of 1,800 planes. As of December, 278 turboprops and 207 turbojets were in operation.

More revenue passenger miles were flown by turbine-powered aircraft last year than the entire industry flew in 1953.

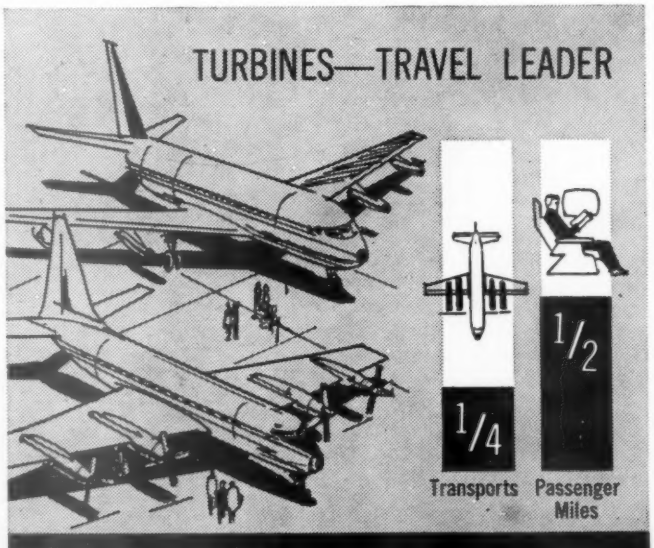
About three dozen American cities, from Anchorage, Alaska, to Honolulu, Hawaii, to Tampa, Florida, receive regular jet service. The number of cities, growing rapidly, is expected to total 56 by 1964.

Re-equipment boom

In order to meet the growing clamor for the benefits of turbine travel, the air lines are in the midst of a $3.5 billion five-year building program which will include addition of 28 more turboprops and 193 turbojets, and the equipment to operate them, by the end of 1963.

This re-equipment program — the fifth such program undertaken by the air lines since World War II — ultimately will mean 80,000 to 125,000 more jobs in the country. Each of the air lines' major re-equipment programs has been bigger than the last one, and the transition to jets has been more costly than the other four combined. Officials estimate that another $1 billion more will be necessary in a few

(Continued on following page)



In little more than two years since the first U. S.-built turbine transports entered service, these aircraft have assumed the dominant role in U. S. air travel. Today turbine-powered airliners make up only one *quarter* of the total transports in service, but they account for more than *half* the total of passenger miles. Passenger appeal, higher utilization and greater speed are the principal reasons for this unique record.

AEROSPACE

UAL will equip all jets with DME by Dec. 1, 1961

United Air Lines has announced plans to equip its entire fleet of jet aircraft with distance measuring equipment (DME) by December 1, 1961. Distance measuring equipment enables a pilot to obtain a more precise fix on his in-flight position.

United is first to announce it will install this important navigational device on its complete turbojet fleet by a specific date. An order for 138 of the DME airborne units has been placed with the Collins Radio Company of Cedar Rapids, Iowa, at a cost of slightly more than $1 million.

United will install the DME units on its present fleet of DC-8 and Boeing 720 jetliners at the company's San Francisco Maintenance Base beginning in July. New jet aircraft including 20 Caravelles, will be equipped with the device before entering service.

The DME units will operate in conjunction with various VOR (very high frequency omni-directional radio range) stations which the Federal Aviation Agency has equipped with DME facilities.

New ATC center being built in Slidell, La.

Electronic & Missile Facilities Inc., will build a $1,712,000 air traffic control center at Slidell, Louisiana, for the Federal Aviation Agency, it was announced January 11. These facilities are scheduled for completion within 11 months.

Post Office asks Congress for mail rate increases

The postmaster general, J. Edward Day, asked Congress on April 14, to raise postal rates in order to trim the $741,000,000 post office deficit. First class and air mail letters rates would go up one cent on July 1, 1961.

The proposal would raise rates for magazines, newspapers, advertising circulars, and small parcels. If these rates were to go into effect, it would bring the post office an estimated $15,000,000 additional yearly revenue.

The new rate schedule follows the recommendations made by the Eisenhower administration but were not acted upon by Congress at that time.

TURBINE AIRLINERS . . .

(Continued from preceding page)

more years to maintain adequate jet service.

Operating costs are higher. The addition of sound suppressors, to reduce the noise annoyance, adds about $10,000 per aircraft per month to operating costs. Increased training and retraining also adds to the financial burden of the turbine age. Employee training now starts as much as three to five years before actual delivery and operation of the plane.

No expense is spared in behalf of safety, and advanced technology is paying off in a constantly decreasing accident rate as the turbine age progresses. From a rate of 2.45 fatalities per 100 million passenger miles in the period from 1940-44, the accident rate has dropped to .55 fatalities during the period of 1956-60. This is about one-fourth as high as the fatality rate in automobiles.

In the course of 135,551 turbine takeoffs, one air line reports only four power losses which halted a takeoff. There were no failures reported after a plane had passed the last point at which it can safely stop on the runway.

This remarkable safety record complements unprecedented passenger convenience in attracting travelers. The absence of noise in the fore part of cabins is no less startling than the absence of vibration in the craft. So stable is their operation that one early passenger reported that a nickel placed on edge in a cruising jet remained upright for more than half an hour.

Courtesy Endevco Corporation

Public likes speed

Speed also is a big attraction. With the inauguration of turbine engines, a bookful of flight records immediately became obsolete. Planes now span the continent from west to east in less than five hours and from north to south in two hours. The new turbo-fan engine now being installed promises still greater speed and another full cycle of speed records.

As a result of turbine travel, the earth has been shrunk about 40 per cent in travel time, yet simultaneously it has become a bigger world because it is more accessible. Places once beyond reach are now easily within grasp.

These factors have been largely responsible for the fact that since 1949, revenue ton-miles of air traffic are up 328 per cent, with passenger service accounting for 74 per cent of the total.

Airfreight has increased 440 per cent since 1949 and now accounts for 12.5 per cent of total air traffic, as the cargo business booms under the speed and handling ease provided by turbine power. A combination of these benefits is allowing shippers to reduce their long-distance freight costs. Even aircraft engines now are being flown coast-to-coast for assembly. One manufacturer estimates he has saved more than $750,000 on engine shipping costs by flying them.

Maintenance convenience

While all of these virtues of turbine travel are pleasing air line customers, the air lines themselves are reaping commensurate benefits in the convenience of maintenance of turbine engines, which promise eventually to far outstrip piston engines in the overhaul limit—the amount of time an engine can be operated before it must be overhauled.

After 25 years of development, piston engines now have an overhaul time of something less than 2,000 hours. In two years of air line service, turbine engines already have matched that time and officials anticipate they may soon double the time.

Such advantages are of primary concern to the air lines, since the plane is making money for its owners only when it is in the air. The great speed of the turbine aircraft together with the rapidly increasing time between overhaul is giving carriers a much greater utilization rate for turbine-power planes than the piston driven craft. For example, two-engine piston-powered planes were in the air an average of less than 5½ hours a day last year, while the four-engine turbine planes averaged more than 7½ hours of air time daily.

Courtesy TCA Interliner

"Don't just stand there, young man. Point me to gate 18. I have a tight connection to make!"

Changed Your Address?

Please Keep Us Posted

Did you know that the Addressograph Department in the Home Office Mail Room has on file a mailing plate for each and every pilot member?

This plate, listing the pilot's name, home address, city and state is used not only for mailing out your copies of THE AIR LINE PILOT, but for all ALPA mailings addressed to your home.

Membership Records and Addressograph both work hard to keep the home mailing list up to date, but they need your help.

Any time you move to a new apartment, or transfer to a new city, you should advise the Home Office promptly, giving your new and correct mailing address. Addressograph then removes your old plate and makes you a new one.

Your cooperation is urgently requested to help keep the mailing lists up to date. Too many AIR LINE PILOTS and other ALPA mailings are being returned marked "No Forwarding Address," "Moved, Left No Address," or "Address Unknown."

Your help and cooperation will be appreciated.

CAB STUDIES 'NO-SHOW' PASSENGER PROBLEM

The CAB now has under way a study of a problem that plagues air lines—relating the number of passengers to the number of seats in a given flight. It's a three-pronged problem:

1. The problem of air lines accepting more reservations for a flight than there are seats available.

2. The problem of selling more tickets than there are seats.

3. The problem of "no-show" passengers—the people who make reservations but fail to show up for the flight.

These three factors are inter-related. In order to offset the "no-shows" air lines have over-booked and over-sold. One out of 10 passengers fail to use their reservations and neglect to inform the air line about it.

A few years ago the air lines had a $3 penalty against "no-shows" deducted from refund on tickets. This cut the percentage of "no-shows" but passengers resented it and some air lines dropped the penalty or did not enforce it. The "no-show" percentage started climbing again.

Air lines can predict based on past experience, the number of passengers with reservations will show up for a given flight. But these are statistical averages and the possibility of clerical error is present—for example, travel agencies validating tickets without checking whether space is available.

Electronic reservation systems are reducing the clerical error and overbooking problems. But the most serious problem is overselling.

The electronic reservation centers of air lines around the world will be linked in an automatic and almost instantaneous system for reservations and space control beginning October 1, 1961.

This will be made possible by adoption of a universal standard interline message format—a common reservations language with a vocabulary understood by machines as well as humans.

The new code has been agreed on behalf of the 48 U. S. air lines in the Air Transport Association and the 88 member air lines of the International Air Transport Association.

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AIA Annual Award

DR. GEORGE J. KIDERA

DR. JOHN ELDRID SMITH

Aviation Insurance Agency has established two annual awards to be presented through the Aerospace Medical Association. (Virtually all airline medical directors and FAA examiners are members.) The awards committee of AMA bases their selection on the doctors record of achievement in keeping airline pilots flying. One is the Howard K. Edwards Award for outstanding service to pilots in the practice of clinical aviation medicine and the other is the Walter Boothby Award for basic research toward the same goal. These Awards each carry a thousand dollar, tax free, honorarium and we feel the recognition afforded the recipients each year will serve as a reminder that there are still 16,000 airline pilots and only 6 astronauts—and we must continue to live in the present.

Howard K. Edwards Award—1960-61

Dr. George J. Kidera is the most senior commercial airline medical director in the U. S. and has served with UAL since 1938. He directs five full time medical departments staffed by eleven flight surgeons. His preventive medical program for flight personnel is recognized as the best in the industry by ALPA, FAA and Flight Safety Foundation. Dr. Kidera is the retiring president of Aerospace Medical Association and is a past president of Airline Medical Directors Association plus many other offices and honors too numerous to mention except one: He is one of eleven doctors recently chosen for the FAA medical advisory council—the best thing for the airline pilot since the Wright Brothers.

Walter Boothby Award—1960-61

Dr. John Eldrid Smith is chief, Research Requirements Division of FAA. He has been responsible for the development and standardization of balistocardiography instrumentation. This instrument may be loosely described as a three dimensional electrocardiograph. Two principal benefits have resulted from his work. First, measurement of the dynamic functioning of the heart makes it possible to return to duty pilots whom it was formerly necessary to reject. Second, early warning of incipient conditions has allowed for corrective treatment and subsequent return to flight duty. Dr. Smith is responsible for 17 scientific publications and is a sympathetic, competent expert in a field responsible for an overwhelming majority of pilot disabilities.

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